TECHNOLOGY DEPT.

First Copy

A National Newspaper for Every Branch of the Industry

Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

Vol. 14. No. 1831 — Entered as second-class matter Aug. 27, 1925, Post Office, N. Y., N. Y. Under Act of March 3, 1879 — NEW YORK, FRIDAY, OCTOBER 7, 1932 — 5 Cents. $12 Per Year.

S. A. E. Discusses Oil Reclamation at Toronto; Rain Halts Golf Play

Many Advantages Claimed for Refining of Lubricants; 1933 Transportation Meeting Will Be Held in Chicago

Toronto, Canada, Oct. 6.—The pros and cons of reclaimed lubricating oil occupied the center of attention at yesterday's session of the Transportation Meeting of the S. A. E. in convention at the Royal York Hotel in this city. Two papers on the economies of oil reclamation were presented at the luncheon meeting in the Venetian dining room, and lively discussion followed the reading of the papers.

Calling off the golf game because of heavy rain, the gathering spent the greater part of the afternoon in session, although no regular sessions were scheduled. Two other papers were presented this afternoon on the use of employee-owned cars in business, which also aroused keen interest among the delegates. The papers appear elsewhere in Automotive Daily News.

Declaring that not only were great savings possible in lubricating oil costs, but also that many fleet and bus operators were experiencing increased engine efficiency, G. T. Hook, editor of Commercial Car Journal quoted numerous examples of large operators who were experiencing absolute satisfaction from the use of reclaimed oil. The cost of reclaimed oil carried from about 8 cents per gallon to around 14 cents, depending on the amount of oil to be reclaimed and the type of reclaiming equipment used, according to Mr. Hook.

Tackling the subject from a different angle, R. A. L. Bogan, of the Greyhound Corporation, Chicago, operators of the largest fleet of inter-city and interstate coaches in the United States, told of the experiences of his company with oil reclamation dating back five years. Although oil reclamation had resulted in a saving in oil costs last year of approximately $17,500 this in itself was of only minor importance, Mr. Bogan stated. It was the cleanliness and increased efficiency which oil reclamation promoted in the company-operated garages that made the Greyhound Corporation undertake the re-refining of its crankcase drainings.

Prior to the installation of oil reclaiming equipment at a dozen or

(Continued on Page 2)

GRAHAM EXPORTS IN SEPTEMBER BEST SINCE JULY, 1931

Detroit, Oct. 6.—A sharp increase in foreign shipments during September is reported by the Graham-Paige Motors Corporation. Overseas trade was the largest of any month since July, 1931, showing an increase of 66 per cent. over the preceding month and 63 per cent. over the same month last year.

British South Africa and Australia both showed important gains. In Europe, the increased demand was especially noted in Holland, Switzerland and Sweden.

CHAPIN REPORTS 3% BUSINESS GAIN

Washington, Oct., 6.—General business as recorded by weekly indexes of the government shows gains from August to September probably from 3% to 4% greater than the normal seasonal expectation, Secretary of Commerce Chapin declared Wednesday.

"One of the most helpful developments since the curves started upward has been the appreciation in commodity prices, particularly in farm and food products," the secretary said.

Although the changes in the economic situation thus far continue spotty, they offer a basis for genuine encouragenment, he said.

Medium Priced Franklin Under New Name Reported

Syracuse, N. Y., Oct. 6.—The H. H. Franklin Manufacturing Company, manufacturer of Franklin cars, is reported entering the medium priced field with a new air-cooled automobile, bearing a new name, about the middle of October.

According to the report, H. H. Franklin, president of the company, who has pioneered air-cooled automobiles for thirty years, refused to reveal full details of the new car, but admitted that he regarded it as the most important development in Franklin history. He is quoted as saying that the engine would be air-cooled, following Franklin tradition; that it would be supercharged and develop 100 horse power. The report further states that the new car would not replace models already on the market, but would be an addition to the company's line.

Asked concerning the price range, Mr. Franklin is said to have declared that the public would have to wait until the general announcement, but added that the car would be "priced for the times."

Initial production, to be started shortly will be on a moderate, basis and will be increased as distribution to various dealerships progresses, the report continues.

"This new car was designed to meet changed economic conditions," the report quotes Mr. Franklin. "Placed on the market at this time, it not only fills a wider range of car budgets, but it also extends the elements of economy and reliability which have always been closely associated with air-cooling. Tests that our engineers have given it show the car to be outstanding in performance, largely because of the high proportion of power to weight. It will also have the airplane characteristics of Franklin engine design and of modern body streamlining."

38 Car Makers Draw Space For 1933 National Motor Shows

Heavy Demand Reported for Parts and Accessory Space; September Output Is Estimated at 79,166

New York, Oct. 6.—Participation of thirty-eight makes of passenger cars, trucks and taxicabs in the 1933 National Automobile shows at New York and Chicago was assured today at the industry's official show drawing in the New York headquarters of the National Automobile Chamber of Commerce.

Demands of manufacturers for supplementary space to feature their individual lines separately were so great that all the available space on the first floor and mezzanine of the Palace was taken and part of the third floor set aside to take care of the overflow. The applications of shop equipment and automotive accessory exhibitors already exceed last year's requests.

The New York show will be in Grand Central Palace January 7 to 14 and the Chicago show will be held in the Coliseum January 28 to February 4.

Among the new makes of cars to be represented for the first time at the national exhibitions are: Continental, Continental-DeVaux, Stutz (commercial unit).

Charles D. Hastings, chairman of the board of the Hupp Motor Car

(Continued on Page 2)

The National Automobile Chamber of Commerce today announced its estimate of September production, the total being 79,166 vehicle units. This compares with 94,391 in August. This is a drop of 16 per cent. September, 1931, showed an output of 143,212 vehicles. The total production for nine months of 1932 is 1,203,262.

NAMED PRESIDENT

Q. H. Ball, Oldsmobile-Packard dealer of Troy, N. Y., who was elected president of the Empire State Automobile Merchants Association, at Niagara Falls this week.

CADILLAC SALES IN SEPTEMBER ON PAR WITH AUGUST

Detroit, Oct. 6.—One of the most encouraging notes on the present activities and immediate outlook for the automobile industry was sounded today by J. C. Chick, Cadillac general sales manager, in the announcement that Cadillac-La Salle sales increased progressively through each ten-day period of September and finished the month with a total equal to the August volume. August sales were 40 per cent. greater than the preceding month of July.

"There is every indication for equally good sales activity during the present month," said Mr. Chick. "Dealer reports from all sections of the country are decidedly optimistic."

One remarkable development in September was a spectacular increase in the movement of the highest priced cars in the Cadillac line.

"The ultra-luxurious cars during the past month have shown better activity than in previous months this year. In fact, the percentage of business in Fleetwood models is as high as it has ever been in any previous year," Mr. Chick said.

DE SOTO SHIPMENTS IN SEPTEMBER 27% HIGHER THAN AUGUST

Detroit, Oct. 6.—The De Soto Motor Corporation shipped 1,336 De Soto cars in September, an increase of 27 per cent. over August and a gain of 13 per cent. over September of last year.

This year's September shipments of 1,336 cars compares with 1,053 for August and 1,183 for September of last year.

TOOL INDUSTRY CONTINUES DULL; INQUIRIES GAIN

New York, Oct. 6.—"The machine tools markets throughout the country are still quiet, although September brought more orders than August," says Iron Age. "In some sections there have been more inquiries, but many of them are for estimating purposes.

"The committee on industrial rehabilitation, headed by A. W. Robertson, chairman of Westinghouse Electric and Manufacturing Company, has not yet begun to function and it is, therefore, too early to estimate its effect on the machine tool industry.

"The American Sheet and Tin Plate Company is placing orders for $2,500,000 worth of mill equipment for its plants at Vandergrift, Pa., and Gary, Ind. Gary is getting the larger share, but orders for Vandergrift include considerable furnace equipment and other accessories for the modernization of sheet mills.

"The W. C. Gruno[illegible] Corporation, Chicago, which will engage in the manufacture of electric refrigerators, is reported to be prepared to buy tool room equipment very soon.

"The International Harvester Company will manufacture a new light tractor at its Rock Island, Ill., plant."

Empire State Merchants Seek Added Road Work

Niagara Falls, N. Y., Oct. 6.—Before winding up its third annual convention here yesterday the Empire State Automobile Merchants Association took time out to adopt a resolution directed to Gov. Franklin D. Roosevelt, asking that he commit the state of New York to a program of road construction and improvement as a means of increasing employment at the present time by an investment which would return dividends for years to come.

The preamble of the resolution also criticized Gov. Roosevelt's remarks at Salt Lake City, in which he was quoted as saying that motor vehicles are operating on highways free of tax.

The association also announced a complete roster of its newly elected officers, in addition to Q. H. Ball, Troy, N. Y., whose election to the presidency was announced yesterday. The other new officers are as follows: First vice-president, E. C. Bull, Buffalo; second vice-president, W. W. Garabrant, Utica; secretary, H. W. Kellogg, Niagara Falls; treasurer, C. H. Touhey, Albany.

Directors up for election all re-elected except. W. T. Pritchard of Ithaca, elected for three-year term, in place of H. P. Hannan; C. H. Touhey, elected for two-year term, to replace W. A. Carpenter.

The preamble and resolution adopted in closing hours of convention and directed to Gov. Roosevelt, read as follows:

"During the past two years we have all come to realize that cost of government is a tremendous burden on taxpayers in every section of the United States. It is unnecessary to say a great deal about this because there has been so much agitation to lessen these expnditures that every one is quite familiar with the problem.

"It is necessary, however, until measures of retrenchment have become effective, and particularly during the period of readjustment to be on the alert to see that our industry is not penalized by being called upon to bear more than a just share of the burden of taxation.

"Taxpayers are organizing and committing their representatives in Congress and state and local governments to a program of rigid and

(Continued on Page 2)

Empire State Merchants Seek Added Road Work

(Continued from Page 1)

drastic economy. Influential groups of business leaders and real estate operators have proposed methods and means which they believe should be followed to accomplish this end. It is, of course, but natural for each group of taxpayers to try to shift the burden from their shoulders to the shoulders of some other class.

"While there is some general swapping among the individual classes it is rather peculiar and pertinent, as far as we are concerned, to find that each group unhesitatingly, and perhaps sincerely, is willing to recommend increases they believe the automobile industry and automobile owners should pay to offset the decreases they are demanding.

"In addition to these civic groups we find a growing tendency on the part of the railroads to ask for legislative protection to strengthen their position at the expense of the motor vehicle industry. The rails once had a monoply on all overland transportation and they are quite concerned and chargrined to find that the motor vehicle has stepped in and is giving them some competition.

"But their propoganda has aroused the interest of many government officials and enlisted their aid to limit the motor vehicle as a competitor.

"Is was surprising to hear a candidate for president of the United States, who is accredited with being the people's champion in the development of inland waterways, so that produce from the farms, the mines and industry may enjoy cheaper transportation through American channels, say that motor vehicles are allowed to operate tax-free and that an adjustment must be made favorable to all the railroads. This statement was broadcasted from Salt Lake City about two weeks ago.

"You and I know that an industry that paid more than one billion dollars taxes in a year should not be called a tax-free industry. I cannot see why intelligent American people persist in crying for additional taxes on our industry. I hesitate to believe that the railroads have subsidized some of our government officials, but $ cannot subscribe to the idea that the efficient service the motor vehicle renders to all classes of people should be subordinated to the inferior service which the rails give.

"In this state more than ninety million dollars will be collected from the pockets of the motorists this year. Only a small portion of this tax is to be used for highway purposes. The bulk of it is diverted to other channels. We have never hesitated to pay our just share of taxes, but we are now confronted with the threat of additional levies and a smaller budget for road construction and maintenance in spite of the fact that other groups are hopeful that their taxes will be reduced.

"The state is called upon to appropriate large sums of money for relief purposes during these trying times. We all sympathize with the unfortunate men and the unfortunate woman unable to find work to support themselves and their families. It is a sad sitaution, gentlemen, and one worthy of our unstinted support.

"But nine out of every ten people who are out of employment do not want a dole system. They want work and not charity. They are willing to work but many are too proud to ask alms of any person or any government. What are we going to do for them; that is the problem.

"If we can find a means of employing some of them, or all of them, that would save them from the horror in their minds of seeking charity and at the same time pay them a reasonable wage for their labor, we would be doing the intelligent and gracious thing.

"In addition to this, if we could find a way of giving employment in a useful occupation, so that the moneys expended for relief purposes would benefit the state, we would be doing a wise thing.

"But in addition to these two things, if we could employ them on a job that, when completed, would pay dividends for years to come on the moneys expended for labor and materials, would we not be doing the most gracious, the most intelligent and the wisest thing to do for all concerned?

"When we look for a department of the state government that returns a dividend on the investment we find but one. This is the tSate Highway Department. And this, gentlemen, is the answer.

"If our road system were complete and there might be some question about putting additional money in road work. But it is not one-quarter completed. There is a great need for more roads and better roads in every section of the state. The more roads we have, the more motor vehicles we will have. The more motor vehicles we have the more license plates we use and the more gasoline we use, both of which means more revenue for the state.

"While economy is a good thing to practice at all times, any private business concern would not call it economy to close down the only department that returns a dividend on the investment, especially, if there was the assurance that expansion of that department would bring in a higher rate of earnings on the additional investment necessary. We know that is the department they would give the greatest consideration to.

"This is precisely the sitaution of the Highway Department of the state today.

"Believing, as I do, that an augmented road construction program would be the most economical and the right kind of unemployment relief for the best interests of all classes of our citizens, I hereby offer for the consideration of this convention the following resolution and I trust that it will meet with wholehearted support and indorsement:

"'Resolution: In view of the foregoing remarks, which are to be a part of this resolution, and because 80 per cent. of the cost of highway construction goes to the employment of labor directly and indirectly, and because further materials used in highway construction are or can be manufactured in New York state, thereby keeping all employment resulting from highway entirely within the state borders,

"Be it resolved, that the Empire State Automobile Merchants Association, Inc., respectfully request his excellency the Hon. Franklin D. Roosevelt, governor, and the New York State Legislature to commit the state to a program of highway construction, improvement and maintenance to relieve the traffic situation and to expedite traffic thereon by constructing four widths on the main arteries, and

"Be it further resolved, that bridges and underpasses be improved to lessen traffic dangers and to expedite traffic,

"Be it finally resolved, that the moneys necessary to carry out this program of unemployment relief and revenue producing for the state government be provided from the amount received from all taxation of motor vehicles, operators, licensee, gasoline taxes, etc., etc."

CAR MAKERS DRAW SPACE FOR NATIONAL AUTOMOBILE SHOWS

(Continued from Page 1)

Corporation, is chairman of the Chamber's Show Committee. Other members are: A. R. Erskine, president of the Studebaker Corporation; Alfred H. Swayne, vice-president of the General Motors Corporation.

The makes of cars whose appearance at the shows is assured are:

PASSENGER CARS

Auburn, Austin, Buick, Cadillac, Chevrolet, Chrysler, Continental, Continental-DeVaux, De Soto, Dodge Brothers, Essex, Franklin, Graham-Paige, Hudson, Hupmobile, La Salle, Lincoln, Marmon, Nash, Oldsmobile, Packard, Pierce-Arrow, Plymouth, Pontiac, Reo, Rockne, Studebaker, Stutz, Willys-Overland and Willys-Knight.

MOTOR TRUCKS

Austin, Chevrolet, Corbitt, Federal, Graham Brothers (Dodge), Reo, Stewart, Stutz and Willys-Overland.

Among the prominent automobile executives who attended the chamber session were:

A. J. Brosseau, president, Mack Trucks, Inc.; E. L. Cord, president, Auburn Automobile Company; A. R. Erskine, president, the Studebaker Corporation; Robert C. Graham, vice-president, Graham-Paige Motors Corporation; Charles D. Hastings, chairman of the board, Hupp Motor Car Corporation; Byron C. Foy, president, De Soto Motor Corporation; Alvan Macauley, president, National Automobile Chamber of Commerce, and president, Packard Motor Car Company; L. A. Miller, president, the Willys-Overland Company; Alfred H. Swayne, vice-president, General Motors Corporation; F. J. Haynes, treasurer, National Automobile Chamber of Commerce; R. H. Grant, vice-president, General Motors Corporation.

H. T. Ames, president Duesenberg, Inc.; R. S. Cole, vice-president Hupp Motor Car Corporation; John J. Schumann, Jr., president General Motors Acceptance Corporation; L. G. Peed, sales manager De Soto Motor Corporation; R. J. Corbitt, president the Corbitt Company; W. A. Blees, sales manager Buick Motor Company; J. W. Frazer, sales manager Chrysler Sales Corporation; C. G. Abbott, sales manager Hudson Motor Car Company; William Schacht, president LeBlond-Schacht Truck Company; R. W. Stork, secretary and treasurer La France-Republic Corporation; John E. Williams, sales manager H. H. Franklin Manufacturing Company.

E. G. Poxson, sales manager, Reo Motor Car Company; W. F. McDonald, sales manager, Maccar Truck Company; Charles B. Warren, director, the Nash Motors Company; T. R. Lippard, president, Stewart Motor Corporation; E. S. Gorrell, president, Stutz Motor Car Company; F. H. Tinsley, vice-president, Walker Vehicle Company; J. C. Boyers, president, Ward Motor Vehicle Company; Stanley Seward, advertising manager, the White Motor Company; Henry Krohn, sales manager, Continental-De Vaux Company; William L. Hughson, president, San Francisco Auto Dealers' Association; M. L. Pulcher, president, Federal Motor Truck Company; J. A. Bohannon, president, the Peerless Motor Company.

S. A. E. Discusses Oil Reclamation at Toronto

(Continued from Page 1)

more large centers, the efficiency and orderly operation of the garages was being being constantly lowered by the accumulation of pans and barrels of old lubricating oils. The company at one time attempted to dispose of these drainings by burning the oil in oil furnaces, but this did not prove satisfactory. The problem had been finally solved by draining and refilling crankcases only at central points fitted with oil reclaimers.

The subject of employee-owned cars in business was discussed by J. M. Orr, Equitable Auto Company, Inc., Chicago, representing the National Electric Light Association and by H. Johnson-Tighe of the Sun Oil Company, Ltd., Montreal, representing the Canadian Electrical Association. Both speakers declared that there was still considerable study and analysis required on the subject, and that a careful analysis of costs was the only way in which a concern could arrive at an accurate decision one way or the other.

An invitation to attend the 1933 transportation meeting in Chicago, next September was extended the delegates by L. V. Newton, chairman of the Chicago section of the S. A. E. The Chicago Worlds Fair would be in full swing at that time and visiting engineers were assured of an abundance of outstanding attractions.

SPARKS from DETROIT

* * *

Mystery Number One

* * *

Farmers' Medals

* * *

Ray Sackett

* * *

John Trix

* * *

Chris Sinsabaugh—Detroit Editor

SOME ONE—we can't even guess who it is—has started a mystery campaign having to do with a new car that is being groomed for a debut. The campaign is being carried on from New York city and the identity of the principal is concealed under the title of "Bureau of Auto Information." Mebbe it is some Detroit company, but if so, this deponent knoweth nothing about it.

However, so that it will get in the record, we quote briefly from this anonymous publicity that "one of the oldest car manufacturers in the industry will soon bring out a new car that is expected to be the most sensational presentation of the current year."

* * *

CONTINUING: "Among the rumors which persist concerning the new car is that it is the most revolutionary ever developed by this manufacturer, the car being designed to meet changed economic conditions, which should indicate strongly that it will strike a new lower price range. This new car, it is said, will not replace an already existing line but will be an addition."

Who is it? Your guess is as good as mine.

* * *

MY CONTACT WITH THE FARMER, James J. McMahon of the Corn Belt Farm Dailies, has just called to bring me up to the minute regarding the industry's best customer.

"To show the relative difference between the price of grain sold to elevators or to the neighboring live stock farmers and grain sold through live stock I'd like to tell you of a striking incident," said this well posted authority.

"Two farmers called at our Chicago office a short time ago. One of them had just 'topped' the market, that is, got the best price, which to a farmer is like winning a medal or a decoration to a city man. He was anxious to have us run a story about it.

"One farmer told me he had sold his corn to this friend for twenty-five cents a bushel, while the other fellow had netted from seventy-five to ninety cents because he fed the twenty-five cent corn to his cattle and received the higher price because he had manufactured it into beef. This chap received $3,690 for his cattle, leaving him $1,000 profit, so he should be a prospect for a car.

"I tell you this story because the automobile point is that whenever a salesman sees cattle nowadays, he should try to sell that farmer because the latter either has money now or will have in thirty or sixty days when his cattle are sold."

All of which is good news for the anxious sales manager.

* * *

RAY SACKETT wants a job and he is pursuing a most unusual way of going after one. Being a publicity man (he has resigned as director of publicity of Advertisers, Inc., after four years' service), he is sending out to several hundred prospects a clever folder, advising the automobile industry that he is on the market.

The pamphlet carries a full-length picture of him, a reprint clipping of "Sackett Leaving Advertising Company," and giving his automobie history. Eight jobs he thinks he is qualified for are listed and he suggests "three ways to help R. C. Sackett get a job: 1—Hire him yourself. 2—Advise a client to hire him. 3—Give him some leads to follow up."

After reading it I felt like giving him a job myself, only this column-conducting is a one-man affair.

* * *

WHEN MICHIGANDERS gave Col. W. S. Gilbreath of the Automobile Club of Michigan that big testimonial dinner last spring in recognition of what he had done for highway improvement, one of the banqueters was John Trix, a picturesque old gentleman, 84 years of age, who, I was told, had been one of the hardest workers for good roads in this neck of the woods.

John Trix died the other day and I learn that it was largely through his efforts years ago that the efforts of the labor unions to organize the automobile workers in Detroit were defeated.

Retail Salesmen—This Is Your Page

This department is devoted to the interests of the retail sales division of the industry. Salesmen, this is your department. Automotive Daily News wants you to get something from this department that will help you in your work on the firing line. It wants you to pass on your own experiences, success, failures to help your brother salesmen. Send in your story in the form of a letter, or even a postal card, and let us get it ready for publication. Your achievement or your mistake may help another salesmen to make sales or avoid errors that cost you commissions.

Dealers read this page. Give us the benefit of your reactions on these problems that affect the work of your salesmen, the men on the firing line, the men who bring home the bacon or don't.

WILL THIS SOLVE THE USED CAR PROBLEM?

At the recent annual meeting of the Pennsylvania Automobile Dealers' Association, held at Harrisburg, Alfred Reeves, vice-president and general manager of the National Automobile Chamber of Commerce, brought up a question, almost a traditional question in our industry.

Mr. Reeves began by saying that the used car will always be with us. If there were no used cars in the automobile business practically everyone would like to be a dealer and sell cars with the clear discount that goes with such sales. The genial N. A. C. C. executive called attention to the fact that when a dealer speaks of used car losses, it is simply another way of saying that he has cut the price of the new vehicle. He insisted that every efforts should be made by every dealer to make a profit or at least break even on used cars.

This is something every observer of automotive business activties has been insisting on for many years. This newspaper has raised its voice in the past, perhaps so frequently that our readers may have thought we were just a trifle monotonous, but repetition surely is justified when the offense is itself so repetitious as to be almost habitual. The used car, and we say this with the utmost emphasis, is all that stands between profit in the automobile dealer field and loss. Even in this year of lean production enough cars have been built to give a profit to every dealer in the business if every sale were a clean one and used cars simply evaporated into thin air when their owners decided to buy new ones.

But Mr. Reeves did more than state again an age-old problem. He had a suggestion to make that will interest our dealer friends and their salesmen.

Mr. Reeves, saying frankly that he had much doubt that it ever would be done, suggested that the used car evil could be overcome if all dealers in the town posted a sign in their windows, somewhat as follows:

"The price we offer you for your used car in part payment for a new car is the same price that we will pay you in case you do not want to buy a new car."

Mr. Reeves feels that such a notice would be an almost complete check on the wildcatting in used cars that has gone so far to ruin the dealer end of what ought to be a splendid business for any man to be in. He suggests that the notice given in the foregoing paragraph could be revised to say that the dealer is prepared to give the price quoted in exchange on the price of a new car or the sum less 5 per cent. in cash as a straight purchase of the used vehicle.

Now here is a concrete suggestion from an executive whose life is spent in the automotive industry, who has been in all divisions of the business and knows all the words and music. He appreciates the position of dealers and we would like to hear from our dealer readers as to what they think of Mr. Reeves' suggestion.

This means YOU and write us today and tell us why you like the plan or why you think it will not work.

NEW TIRE DEVELOPMENTS ARE NUMEROUS AND IMPORTANT

Many new forms of tires for nearly all types of automotive wheeled vehicles were described by Burgess Darrow in a paper presented before the Transportation Meeting of the Society of Automotive Engineers, concluded yesterday in Toronto. Some of these developments are expected to have a marked effect upon the design of the vehicles using them, and one may result ultimately in the extensive use of pneumatic tires on rail cars.

An outline of the paper by Mr. Darrow, who is manager of the development department of the Goodyear Tire and Rubber Company, follows:

We are entering, or have entered, the super-balloon stage of "doughnut" or "airwheel" tires, which are 30 to 40 per cent. greater in width than the balloon tire. The question immediately arises, Is there to be a super-balloon stage for truck tires? The answer certainly is not clear to me. In the case of small trucks, practically passenger-car chassis, or in the case of trucks for special uses, the super-balloon, I believe, is surely ahead of us. In the case of larger conventional trucks, three factors must be considered: (a) the small-diameter-rim idea can be carried to such an extreme that tire life suffers, (b) the brake problem and (c), probably most important, is the question of finding room on the chassis for tires any larger than those we now have.

THE NEW AIRWHEEL

The full super-balloon tire, or what Goodyear terms an airwheel, such as is now widely used on airplanes and which may be, for example, a 9-in. tire on a 3-in. hub or a 15-in. tire on a 6-in. hub, is astonishing in that, because of its extreme proportions, a way was ever devised to build such a tire and because of what it does on an airplane. It is not to be confused with the tires now coming into use on passenger-cars and bearing the same name, because, while the passenger-car tires are as big in cross-section and as small in rim diameter as the application to and behavior on the car will permit, the passenger-car airwheel is far from being like the airplane tire in proportion of tire cross-section to rim or hub diameter. Airplane airwheels taxi through and take off and land in mud where the old-style tire cannot operate. The ability of this "all-balloon" tire to yield sidewise and absorb shocks, both vertical and lateral, makes landings and ground maneuvers possible with safety that, it duplicated on tires of the older type, would result in failure of the landing-gear or cause the airplane to ground-loop or nose over. The safety of the airwheel is its most important feature, especially for experienced pilots when making difficult or emergency landings and also for beginners. The airplane airwheel is making satisfactory progress in the United States but is making greater headway in several European countries, and this no doubt will hasten full acceptance on this continent.

THE PASSENGER-CAR AIRWHEEL

The passenger car airwheel, no doubt, is an outgrowth of the airplane tire, but this development would have come eventually independently of the airplane. The hub diameter for passenger car tires of the airwheel type is fixed by the brake diameter over which the rim fits. In this respect the automobile airwheel, with its 14 to 16-inch rim, is much nearer to the balloon tire it replaces than it is to the airplane tire, which is truly "all tire." It has met with considerable acceptance, and with its strong inherent advantages and the few disadvantages, which I believe will be overcome, we can look forward to its complete acceptance, eventually, on passenger cars.

The automobile airwheel absorbs road shocks to an almost unbelievable extent. This protects the passengers and the mechanism from the shocks and makes possible much higher speeds over bad roads. The tires, with their greater road contact, provide better traction and braking and will travel successfully over very soggy or soft ground that would stop the older forms of tire.

Plenty of objections to such tires are raised at present, but I do not regard any of them as insurmountable. While the tires cushion all severe jolts and jars, a disagreeable rocking motion is felt which it would be very desirable to eliminate. A tendency to induce shimmy and tramp is inherent but no doubt will be remedied. A tendency also is present for the treads to wear fast and in a peculiar cupped manner, owing to the low pressure, but the cupping is largely a matter of appearance late in the life of the tire. Hard steering when parking also is a problem that will be met and solved.

Airwheel tires behave somewhat differently than do others when cutting around traffic, rounding corners and following ruts or car tracks, but this presents no hazard and simply requires a little experience. Whatever tire-noise problems haev arisen with balloon tires can be expected to be accentuated in the case of airwheels, with a

(Continued on Page 7)

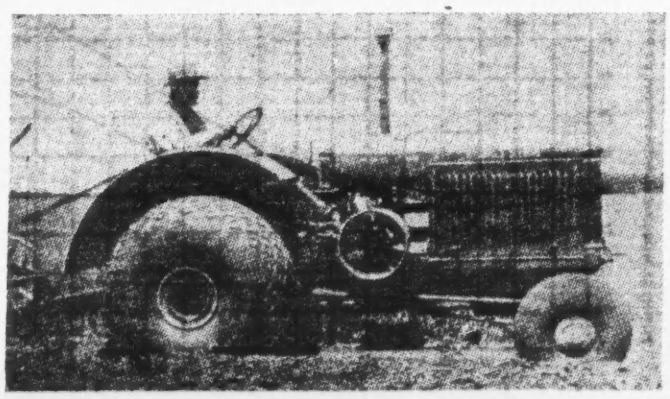


Fig. 1.—Airwheel-equipped farm tractor.

Used Car Selling Prices

Automotive Daily News in this department offers for the benefit of its dealer and salesmen readers a compilation of prices at which used cars have within the past few days been offered for sale by reputable dealers in various cities. These prices will vary on condition and from other causes. They are not presented as being the exact prices at which these models should be sold, but simply as the prices at which they have been offered for sale by dealers in the various cities. Other cities will appear in subsequent issues of this paper.

Oklahoma City

	1931	1930	1929	1928
Buick (Light)	435cp	....	....	....
Buick (Big)	750	385cp-525	285-375c	....
Cadillac	1750r	....	....	....
Chevrolet	350cp-435d	195r-295	....	90cp
Chrysler 6	....	....	395	....
De Soto	....	....	225cp	....
Dodge 6	525cp	....	....	....
Dodge 8	585-625cp	395cp	....	....
Essex	295c	250	....	....
Ford	225cp-295cpd	210cp	100cp-125	85cp
Franklin	....	850	475cp	....
Hudson	595	....	....	....
Hupmobile 6	....	375	275	....
Hupmobile 8	....	....	275	....
La Salle	....	775cp	....	....
Nash 6	600d	395cp	325	....
Nash 8	....	750cp	....	....
Nash Advance	....	....	....	195
Packard	....	1000cp	625	....
Plymouth	....	....	165cp	....
Pontiac	....	....	185cp	....
Reo	....	525	....	....
Studebaker President	....	450	....	....
Willys-Overland	135	....	125cp	....

d-De luxe. c-Coach. cp-Coupe. ccp-Convertible coupe. b-Brougham. t-Touring. r-Roadster. Where no distinguishing mark follows the price the car offered is a sedan.

FLEET MANAGEMENT IS ABLY DISCUSSED

At the concluding session of the Society of Automotive Engineers' Transportation Meeting in Toronto, the "big business" of motor vehicle fleet operation was treated in masterly fashion by E. E. LaSchum, manager automotive department, Railway Express Agency, Inc., New York. His paper, a summary of which follows, contains conclusions that have resulted from many years spent in directing the operation of large truck fleets in the express field:

There are over 1,500,000 truck drivers in this country and over 400,000 garage and repair shop employees. In many individual fleets there are concentrated thousands of drivers and mechanics, rolling stock worth millions, and annual fixed and operating expenses running into millions. Who can deny that fleet operation is a business of sizeable proportions, and having, of necessity, a technique all its own?

DUTIES AND QUALIFICATIONS OF THE FLEET MANAGER

I have for most fleet executives a very genuine respect and admiration. There is one outstanding fact, however, which, unfortunately, applies to certain fleet executives. The man of whom I speak finds himself in a rut. He seems to lack the initiative and the perspective which are necessary if he is to keep step with the quickened pace of modern business.

Frequently this type of man bewails the fact that he is not getting ahead, yet admits that he has not forced upon himself any systematic program of self-improvement, he has not kept abreast of modern developments. He is not a close reader of trade papers, nor is he other than a "grandstand sitter" when it comes to the activities of associations and societies, the benefits from which are chiefly those derived by personal and active participation.

One essential which he lacks, and which in fact all fleet managers should keep before themselves, is a definite thoroughly crystallized understanding of what the nature of his job is, or should be. A fleet executive must be thoroughly grounded in the principles and practices of motor vehicle maintenance and, in the policies and practices of other departments of his concern.

He must pay particular attention to the creation of a highly efficient capable operating organization, not only in respect to minor executives under his supervision, but also in regard to drivers. Much remains to be done in the training and supervision of drivers, in safe operation, in efficient care of vehicles and in more courteous and satisfactory relations with the public. He must be thoroughly grounded in garage and shop layout and equipment. He must be an expert in the selection of the proper type, make and size of motor vehicle equipment, including chassis, bodies, accessories, etc.

He must know motor vehicle cost accounting, and insist upon not only an adequate accounting system, but also upon uniformity throughout all sections of his fleet. Through his practical application of the principles of cost accounting, plus his knowledge of motor vehicle equipment, he must be able to determine the economic time for replacement of old vehicles and equipment.

He must set operating standards and maintenance standards, by which to judge the results achieved by his organization, and, in this connection, he must pay particular attention to increasing the productivity of equipment under his supervision.

He must, of course, be thoroughly grounded in motor vehicle legislation in the states in which he operates, in the details of handling licenses, registrations, etc.

The ideal fleet executive, in my opinion, possesses a well balanced fund of information along both business and technical lines. The

(Continued on Page 5)

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

Published Every Day Except Sunday, Monday and Holidays, and Tuesday When a Holiday Falls on Monday.

AUTOMOTIVE DAILY NEWS PUBLISHING CORPORATION
350 Hudson St., New York, N. Y.

O. J. Elder, President. H. A. Tarantous, Vice-President. Alexander Johnston, Secretary.
Entered as second-class matter August 27, 1925, at the post office at New York, N. Y., under the Act of March 3, 1879.
350 Hudson St., New York, N. Y. Telephone CA nal 6-1000.

MEMBER A. B. C.

Mail subscriptions to CIRCULATION DEPARTMENT 1926 Broadway.
Telephone TR afalgar 7-4500.

Subscription Rates: One year, $12.00; two years, $20.00 for United States and Canada, also Mexico, Cuba and Panama.

To Other Countries: One year, $15.00; two years, $26.00. Single copies 5 cents.

FRIDAY, OCTOBER 7, 1932

ADVERTISING AND BUSINESS HEADQUARTERS

Harry A. Tarantous, Business Manager. 350 Hudson St., New York, N. Y.
B. B. Crighton, Assistant to Business Manager.

George M. Slocum, Manager, Detroit Bureau, 427 Fisher Building, Detroit, Mich.; phone Trinity 2-3500. Willard R. Cotton, Western Manager, 333 North Michigan Ave., Chicago, Ill.; phone Andover 2400. Metz B. Hayes, New England Manager, Little Building, Boston, Mass. Blanchard, Nichols & Coleman, American National Bank Building, San Francisco, Cal.; Lincoln Building, Los Angeles, Cal.; 1037 Henry Building, Seattle, Wash.

Address ALL Advertising and business correspondence to 350 Hudson St., New York city.

EDITORIAL DEPARTMENT

350 Hudson St., New York, N. Y. Telephone CA nal 6-1000.
Alexander Johnston, Editor. William C. Callahan, News Editor.

Statistical Department (registrations and specifications), P. J. Robas, statistician. Engineering Department, A. Benson Carleton, technical editor. Merchandising Department, Charles S. Zack, editor. Art Department, John Bauerfeld, director.
Detroit Bureau, Chris Sinsabaugh, editor, 427-8 Fisher Building, Detroit, Mich. Telephone Trinity 2-8500. Contributing editor, John C. Wetmore.

Advertising Service

IN the current issue of Studebaker Service, the organ of the service department of the South Bend corporation, there is an extremely interesting article on "Bidding for the Tourist Business."

In the course of this article the writer makes some very pertinent statements in regard to efficient methods of developing service sales. He remarks: "A successful business cannot be built on advertising alone; but, on the other hand, no business of this kind can be successful without effective advertising of one or more kinds."

Later in his story the writer makes the point that many eminently efficient service stations are not getting their share of the tourist business because they are not making any effort to call their service facilities to the attention of touring motorists. He recommends attractive signboards along the main traveled highways that run through or near the place in which the service station is located.

This point is very well taken. In spite of depression, unemployment, the volume of motor tourist travel in this country every spring, summer and fall is staggering. Indeed, it seemed this summer that many Americans, being otherwise unemployed, climbed into their cars, called to their families and went touring, to take their minds off the situation at home.

Inevitably tourist travel by motor car brings maintenance work—fueling, lubricating, washing and what not, as well as emergency repair jobs to service stations far from the car owner's home. It is scarcely necessary to point out to service station owners that in this year of 1932 no class of business can be neglected if operations are to show a profit. We believe that this item of transient or tourist business is the one most frequently neglected or ignored by the service station owner. Automobile dealers today realize as never before the necessity for going out and getting the home-town service business, to which they are entitled, but not all of them try for their share of the tourist trade. Those who are not going after tourist business will be well advised to revise their operations to take in this division of possible profit.

To Follow, Not Lead

It used to be the fashion to assert that the automobile business was going to lead the country out of the depression. The happenings of the last few months make it plain that this time the automobile business is going to follow general commercial conditions, rather than set the pace. There is nothing alarming in this situation, nor is the automotive industry blameworthy for not leading the pack as it has done so many times in the past.

As a matter of fact, out of this condition we in the autotive industry can actually take considerable satisfaction.

An article in the Automotive Daily News recently quoted Richard H. Grant, the astute sales chief of General Motors, as noting an improvement in motor car buying throughout the South, since the price of cotton rose to a place where the farmers were able to show a very modest profit. This same phenomenon has been noted in other sections. In areas where cattle raising is the predominant industry, increase motor vehicle buying followed better prices for animals. It will be so in the wheat-raising states if the farmers are able to show a slight profit on their grain.

The hopeful feature of the situation is this: The revival of motor vehicle buying has followed almost instantly on better prices for the staple commodity that the territory depends on for its livelihood. Dealer stocks have been held so low this year, and last year, too, for that matter, that the slightest uplift in general business conditions in any section is immediately felt through the whole automotive industry. Our readers will remember how rapidly a betterment in general business was followed by Chevrolet's announcement of a stepping up of its production schedule. As business gradually gains momentum, we are going to hear of many similar cases.

HIGHER COMPRESSION RATIOS IMPROVE PERFORMANCE

Results of research work into the effects of fuels upon engine performance were presented before the transportation meeting of the Society of Automotive Engineers, recently concluded in Toronto, by Dr. Graham Edgar, director of research Ethyl Gasoline Corporation. It was clearly shown that if the fuel is such as to prevent detonation an increase in the compression ratio results in increased power and decreased fuel consumption. A summary of Dr. Edgar's paper follows:

Only in recent years has an increasing realization existed among automotive engineers and oil refiners that the possibilities of the internal combustion engine are in large measure determined by the nature of the fuel which may be available for it. This realization has resulted in valuable co-operative research between the two industries. Important progress has been made in both industries and a firm groundwork has been laid for future progress.

The most important properties of a fuel for the internal combustion engine are: (a) heat of combustion; (b) volatility; (c) freedom from objectionable impurities, and (d) tendency to detonate.

The heat of combustion (a) represents the total energy available for conversion into power by the engine. If we limit ourselves to the hydrocarbon fuels, such as petroleum products, benzol and the like, the differences between the heats of combustion are so small that they may be neglected, and we may safely say that the heat available for conversion into power is practically independent of the nature of the fuel.

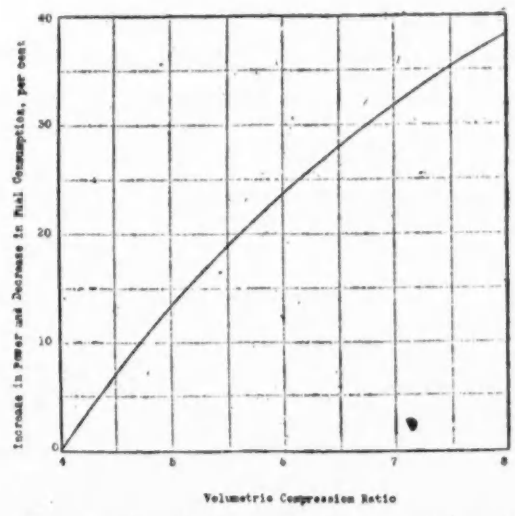
Fuel volatility, (b), is of great importance in determining ease of starting, smoothness of accelerating, tendency to cause vapor lock and tendency to cause crankcase-oil dilution. Fortunate, the volatility of practically all commercial fuels is satisfactory and there seems to be no probability that the future development of the automotive engine will be in any way limited by poor volatility.

The chief impurities in gasoline, (c), are sulphur and gum. Here again it is not worth while giving time to their discussion, since, in general commerical fuels are quite satisfactory from this viewpiont.

Of all of the properties of a fuel which determine its suitability for use in the internal-combustion engine, the tendency to detonate (d), is so much the most important that all others can be regarded as secondary. The efficiency with which it is possible to convert heat into power depends fundamentally upon with tendency of the fuel to detonate.

The efficiency with which an engine converts the heat of combustion into power depends upon many design factors such as cylinder design, ignition and valve timing, and the like, but in a given engine, efficiency depends almost entirely upon the compression ratio. The variation of efficiency with compression ratio in characteristic engines is shown in the accompanying Fig. 1.

Figure 1



If, however, in a given engine with a given fuel, the designer attempts to increase efficiency by increasing the compression ratio, a point is reached where the combustion characteristics show an abrupt change; a high-pitched metallic sound occurs, the engine begins to overheat and the power, instead of increasing with increased compression ratio, begins to decrease. This phenomenon called detonation; or "knock," "pink" or "ping," is of vital importance to both the automotive engineer and the oil refiner. If it did not exist, there would be no reason why brake mean effective pressures vastly in excess of those employed today should not be achieved, by increased compression ratio, supercharging, or both, with resultant increases in power and in fuel economy.

The nature of engine detonation has been made quite clear by researches of the last few years, but the exact reasons why different fuels vary so much in their detonation tendencies still largely elude us. It has been shown, however, that the relative tendency of fuels to detonate is entirely dependent upon the chemical nature of the fuels. So great are the differences produced by differences in chemical structure that at present two pure hydrocarbons, differing only in their chemical structure, are employed as a scale of anti-knock value. One of these, pure heptane, knocks worse than any gasoline; another, iso-octane, knocks less than any gasoline. So we express the anti-knock value of a gasoline in terms of the percentage of octane in a blend of heptane and octane; that is, the so-called "octane number."

No fixed relationship exists between the octane number of a fuel and the permissible compression ratio, for this depends upon engine design and characteristics.

COMPRESSION-RATIO INCREASE ADVANTAGEOUS

To the automotive engineer, the advantages of being able to increase the compression ratio of engines are outstanding. With no other change than that of an increase in comparison ratio, he can increase engine power, decrease exhaust-gas temperature, decrease the heat lost to the cooling water and decrease fuel consumption. The only requirement is that non-knocking fuels shall be available.

It may first appear that the increase in thermal efficiency (produced by moderate increases in compression ratio), while appreciable, is not great enough to affect largely the performance of the automobile. If, however, we consider the automobile as a whole, and not merely the engine, a very different picture is presented. A given automobile requires a certain amount of power to drive it on the level at a given speed; whatever additional horse power the engine possesses is available for hill climbing, acceleration and the like. Therefore, the additional power produced by increasing the compression ratio adds a greater percentage to the reserve power than it does to the power of the engine as a whole. Actual data from two commercial cars, for which optional heads are available, are given in Table 1.

It should be pointed out that the increase in ton-miles per gallon is clearly greater than the increase in miles per gallon, since there is a substantial power increase as well.

High compression offers to the automotive designer a means of in-

(Continued on Page 6)

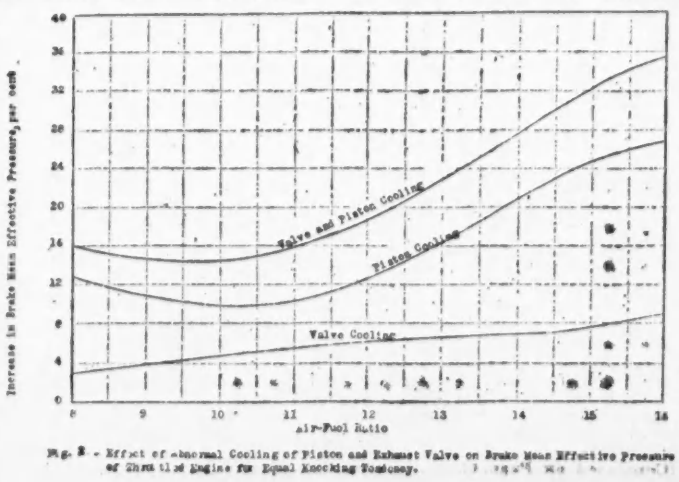


Fig. 2 - Effect of abnormal Cooling of Piston and Exhaust Valve on Brake Mean Effective Pressure of Three-tl ed Engine for Equal Knocking Tendency.

COMING EVENTS

OCTOBER

8- 7—**Buffalo, N. Y.** National Metal Congress. Sponsored by American Society for Steel Treating, with co-operation of American Society of Mechanical Engineers, Institute of Metals and Iron and Steel Divisions of American Institute of Mining and Metallurgical Engineers, American Welding Society, Wire Association.
8- 7—**Washington, D. C.** National Safety Council Meeting.
8- 7—**Buffalo, N. Y.** National Metal Exposition, 174th Regiment Armory, W. H. Eisenman, 7016 Euclid Ave., Cleveland, director.
8- 8—**Buffalo, N. Y.** National Iron and Steel Meeting.
4- 5—**Niagara Falls, N. Y.** Empire State Automobile Merchants Association, Inc., Convention.
4- 6—**Toronto.** Transportation Meeting, S. A. E., Royal York Hotel.
10-14—**Atlantic City, N. J.** American Gas Association.
13-22—**London, England.** Olympia Show.
17-22—**Atlantic City, N. J.** National Hardware Association, Accessories Branch.

NOVEMBER

11-19—**Glasgow, Scotland.** Motor Show.
14-16—**Atlanta, Ga.** National Tire Dealers' Association
15-17—**Houston, Tex.** American Petroleum Institute Meeting

DECEMBER

2- 3—**Detroit.** National Standard Parts Association Convention.
5—**New Orleans, La.** Association of Asphalt Paving Technicologists.
5- 9—**New York.** Annual Meeting A. S. M. E.
5-10—**New York.** Power and Mechanical Engineering Exposition.
5-10—**Detroit.** Third Annual Joint Trade Show, National Standard Parts Association and Motor and Equipment Manufacturers' Association, Convention Hall.

JANUARY

7-14—**New York City.** National Automobile Show, Grand Central Palace.
7-15—**Los Angeles, Cal.** Los Angeles Motor Car Dealers' Association, twentieth annual show
16-28—**Detroit.** Highway and Building Congress.
28-Feb. 4—**Chicago.** National Automobile Show, Coliseum.

FEBRUARY

11-18—**Kansas City, Mo.** Kansas City Motor Car Dealers' Show.
27-Mar. 14—**New York City.** Chemical Exposition, Grand Central Palace.

APRIL

20-21—**Cleveland, O.** National Petroleum Association.

Fleet Management Is Ably Discussed

(Continued from Page 3)

fleet executive, who is simply a former mechanic or an engineer, or a transfer from some other department of the business, will be one sided until he acquires that all-round knowledge which is fundamental to success in a fleet operation.

In regard to subordinates, I am impressed more and more with the fact that greater care should be exercised in their selection, and in their training. The truck drivers, for example, often the most important contact between a business and its customers. His driving intelligence and ability are continually making a host of unknown friends or enemies for his company. Necessarily, the rules and regulations under which he works must be written by someone who has a sympathetic understanding of the job he hadnles, and a fair estimate of his intelligence. It is a common saying that a driver can "make or break a truck."

Equally important is the training and handling of minor executives. Too few fleets have definite courses of training of such practical nature as to produce genuine results. A lot of money can be wasted on foolish training schemes—but properly organized and applied, a specific course of instruction can be the means of saving untold dollars.

The fleet executive's superior officers are no less human than himself. They are very busy men. They are seldom equipped with a background of motor vehicle experience. Therefore, I say to you fleet operators, see that your superior officer is constantly in possession of all of the facts, and that such facts are graphically brought out in relation to other departments of the business.

Operating statements should show: How many trucks are in operation, and what they cost. What the present annual replacement bill averages. What saving you estimate can be made on it. What the cost of operation is. If shown in ton miles, explain just what that means.

Managers should chart the present organization, and against it, place the reorganization chart, showing what and where changes need be made. He should explain the benefits of these changes as clearly as you have already outlined the savings in costs.

The executive who feels that his part in the operation of the business is underestimated and unappreciated, can remedy that situation by a constructive review of the fleet operations of his company, and by an intelligent presentation to the proper executives of the methods by which costs can be cut and service improved.

UNIFIED CONTROL

Because truck operation is a comparatively new department, of many businesses, decentralized control has made efficient operation difficult in many organizations. Slowly, however, larger corporations are improving fleet personnel, putting bigger and more responsible men at the head of their fleet activities; and the results are justifying the change. Others will be forced to make these changes toward centralization by the very weight of the evidence in its favor; for better service, a lower up-keep cost, smaller parts inventory, and more efficient equipment result from a centralized operation of units.

Every fleet manager should be his own purchasing agent. Immediately that function centralizes in his office all demands for equipment, and service tools, as well as truck units and savings immediately result. Because he has taken on the purchasing functions of perhaps a half-dozen other offices, he rates more satisfactory results on the larger quantity purchases of both trucks and parts.

With full knowledge of the truck equipment in the field, he may, by an exchange or shifting of units, save many purchases, necessary with decentralized control. By maintaining a properly balanced inventory of parts, he may make the same exchange of needed units, thereby reducing the parts investmentt. By standardizing on rolling stock, which his experience proves is most efficient, he can further reduce expense.

By shifting units, either over or under capacity for the work they have to do, seasonal or other reasons, service may be improved with the present equipment. Units of the same make may be moved to the same districts, thereby simplifying and unifying maintenance work. With fleets unified by makes, special service tools may be purchased, greatly simplifying otherwise difficult mechanical operations and adjustments, and these operations become faster and easier because repeatedly performed by the same mechanics. Of seemingly small consequence, individually, these manifold small advantages will show substantial savings in a year's operating budget.

Additional advantages are premised on the establishment of a thoroughly practical cost accounting system. By analyzing figures over the same period for many districts, the more efficient furnish experience which, passed on to other districts, brings all up to the same high standards. Inefficient practices can be searched out and remedied, and, through a spirit of friendly competition, the efficiency of the entire operation improved in a score of directions.

MAINTENANCE

The objects of maintenance are two-fold: To keep existing equipment continuously serviceable with minimum expense, and to build an indelible record to be carefully studied when the very important questions of condemnation and replacement comes up. The old axiom, "an ounce of prevention is worth a pound of cure" is as may be termed the keynote of any maintenance program.

The man in charge must be a manager. He may not be an outstanding engineer, chassis designer, body designer or transportation expert nor an expert mechanic, painter, accountant, nor purchasing agent, but the vehicle under his control must represent the coordinated best efforts of each of these.

We have found a chart record of repair jobs to each truck is of great value in scheduling shop work.

Our maintenance superintendent has in his office before his eyes a chart which shows the complete repair history of every truck, every group of trucks, every make and model. The superintendent knows when each truck was overhauled, when it was in the shop for ordinary or running repairs and when it is about due again. By anticipating an overhaul job or holding it off for a week or so, he can keep the shop working steadily with no peaks of hard work and no valleys with little work.

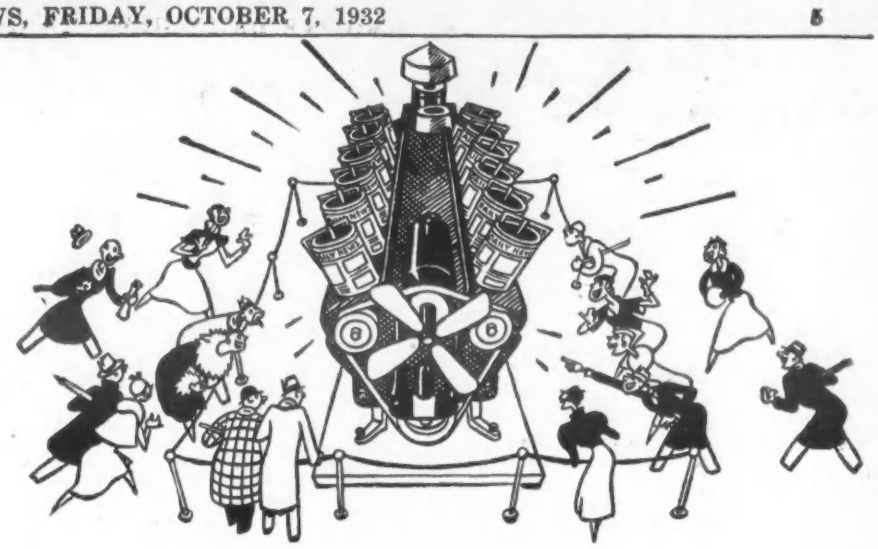
WHEN TO RETIRE A TRUCK

Every truck operator wonders if he should use a truck a few years then trade it in, or get as many years life out of it as possible, and I would like to submit for your consideration a method for determining just when a truck should be retired. The data presented are all based on our experience in New York city, although, for obvious reasons, I do not show actual costs. These figures are based on a fleet of 376 three and one-half-ton gasoline trucks and 193 three and one-half-ton electrics, all averaging fourteen hours of service per day.

Repair costs increase at practically a constant rate each year if overhauls are averaged over the life of the truck. It is not fair to charge an overhaul against the third year of a truck's life when the repairs were made necessary by the work done during the first three years. By the time the gasoline truck is eight years old the cost of chassis repairs has more than tripled. Repairs to the electric increase with truck age until the sixth year and thereafter fall off.

Running repairs and overhauls to the same trucks are separated in chart C. The gasoline trucks were overhauled in the third, fifth and seventh years and the electrics in

(Continued on Page 6)



For New York, try an

AD VERTISING 12!

No, we're not cutting in on the cylinder controversy! We're just enthusiastic, not engineering; neutral, not mechanical. But, being in the business of helping people sell things, we'd like to make a little suggestion. Why not provide yourself with a power plant that sells twelve months of the year?

Shouting during Show Week doesn't echo through the year. Stepping on the gas in Spring won't free-wheel you through four seasons. Of course, it's human to race the engine while the car is new. But it's human to postpone purchasing, to forget, to get along with what you've got, too. The hot January prospect doesn't get a jab of selling juice until Spring, and then you let him alone again. You give him too much time to think of something else!

New York can stand twelve-cylinder selling because it needs, uses and buys cars twelve months of the year. The market is full of people who can buy in October as well as in April or January. Most of these people read The News—twelve months of the year! Your selling message in The News will reach most of your prospects in this market—reach them more effectively. And The News costs so little that you can afford to use it twelve months of the year, provide an even flow of selling power for most of the market most of the time. Put this V12 medium in your selling set-up and get the most out of this market all the time! This Fall is a good time to make a demonstration, try out this selling power plant for yourself! We'll be glad to reserve a ride in any issue that suits you best! Phone, wire or write!

The News, *New York's Picture Newspaper*

220 EAST FORTY-SECOND STREET, NEW YORK

Tribune Tower, Chicago + + Kohl Building, San Francisco

Fleet Management Is Ably Discussed

(Continued from Page 5)

the fourth and seventh years. The last overhaul to the gasoline trucks was about twice as expensive as the first two. Strange as it may seem, running repairs remain fairly constant after the third year in the case of the gasoline truck.

In the case of an electric truck, inasmuch as repairs do not increase after six years of life, the truck need not be retired unless it becomes obsolete.

But the same thing is not true for the gasoline truck. To know whether it is cheaper to buy a new truck or keep on repairing the old one, we must consider two factors—the first cost or purchase price of the truck and the cost of all repairs—chassis, body and painting—for each your of life.

The following figures, I believe, are typical for 3½-ton to 5-ton trucks used in city hauling:

Year of Truck Life	First Cost of Truck	All Repairs Except Overhauls	Overhauls	Total of All 3 Items	Average Cost Per Year
1	$4,000	$450		$4,450	$4,450
2		550		5,000	2,500
3		550	$600	6,150	2,050
4		600		6,750	1,688
5		600	600	7,950	1,590
6		650		8,600	1,434
7		550	800	9,950	1,421
8		650		10,600	1,325
Totals	$4,000	$4,600	$2,000		

The total expenditure for the truck itself and repairs climb to $10,600 by the end of eight years. The average cost per year, however, drops rapidly until the end of the fifth year and thereafter is fairly constant.

One immediately asks, "Why not trade the truck in after its fifth year?" If the truck is to be retired at the end of the fifth year it certainly will not be overhauled the same year. Furthermore, running repairs will be sufficient only to keep the truck on the street. Both chassis and body will be allowed to wear out completely. We find that the average cost per year is $1,400 at the end of the fifth year, as compared with $1,325 at the end of the eighth year. The small difference of $75 would be more than offset by the difference in trade-in value and the superiority of a new truck over an old one.

Accurate cost records and persistent supervision of maintenance methods are worthless unless they produce results. Here is a record of what we have done in New York city over the past three and a half years:

Downward Trend of Maintenance Costs in New York City Dept.

Period—	Average Maintenance Cost per Truck—Gasoline Trucks	Electric Trucks
First half, 1929	$542.59	$367.11
Last half, 1929	522.07	361.79
First half, 1930	511.09	323.62
Last half, 1930	426.14	230.63
First half, 1931	385.14	228.85
Last half, 1931	372.33	202.48
First half, 1932	384.17	194.17
Total reduction in 3½ years	158.42 or 29.20%	172.94 or 47.11%

We, in the Railway Express Agency, have a questionnaire running somewhat as follows:

1. Is the proper equipment assigned to the operation?
2. Is equipment used on routes to which it is best adapted?
3. Are garages properly located?
4. What is the rental per truck?
5. If garage service is done by our own help, is cost excessive, and could it be done more economically with an outside garage, or reverse?
6. If done in an outside garage, could it be done more economically with our own forces?

The complete answer and analysis of the last two questions brought forth much information. It indicated that our rental was $5.92 per truck per month; that the outside service would cost $18 per vehicle per month, with an additional cost of $4 for washing and greasing, or $2 each, making a total of $22 per month per vehicle. This work is now being done by us at about $1.50 per washing and greasing. Including all of the space and our light, heat, water, etc., we are doing the job for about $15 per month.

7. If repairs are made by our own forces, is proper supervision exercised and our mechanics are qualified for the work assigned to them, could repairs be made outside more economically?

A complete anlysis of this question brought forcibly to our attention the fact that an improvement could be made, and it was made.

8. If repairs are made outside, could we do them with our own forces for less money?
9. Should we plan for policing gas and oil purchases.
10. Are schedules in effect to insure proper greasing and oiling at all stated periods, with check-up by our own people?

Each of these questions was a study in itself. Others relate to advertising frames, spare tire handling, the stock of parts, material and supplies, stock room accessibility and protection of platinum points and spark plugs against theft.

We keep a record of road calls. We analyze gasoline and oil, water from radiators, water for flushing batteries and sale of junk material.

Leading truck manufacturers would find contacts easier to maintain, and business easier to close if representatives were trained as throughly in the analysis of transportation problems as they are in the stereotyped methods of salesmanship. The salesman who can discuss intelligently the factors in a hauling problem, and who can intelligently interpret them in terms of size of power plant, tire specifications, axle ratio, wheelbase and body dimensions, etc., is a welcome visitor in the office of any fleet superintendent. His ability to match requirements with specifications will bring him far more quickly to a discussion of terms of sale. He will save far more of his own time and that of his prospect; and will spend fewer hours cooling his heels in outer offices and reception rooms. Men this type are all too few and far between.

These men can contribute something to the fleet operator's knowledge. Their many contacts put them in touch with new solutions to old difficulties as worked out by truck designers; and new and more efficient operation. Because they are technically alert, because they are interested in truck operation as much as in truck sales, they become a clearing house for the best and most advanced practices. I think I speak for the whole fraternity when I say that I am always ready to listen to the man who can tell me sometning new about my job.

I congratulate them very sincerely for the splendid results which they have obtained. I do want to point out, however, that the engineer must spend more time in the field, with operators of his and his competitors' vehicles. I believe that only by this means will he be forcibly impressed with the fact that the buyer of today does not want trucks designed by the law of averages. He wants trucks which can be adapted intimately to his purely personal hauling problems, to the climate, the roads and hills of his locality, to the laws of his state. The engineer cannot adequately learn just what is on the buyer's mind unless he will consent to deviate occasionally from his practice of creating designs after a study of his own and competitors' specifications, and consultations with his own personnel.

I know that the engineer cannot call upon an oil company in the morning, a public utility in the afternoon, a grocer the next morning, etc., without receiving a certain number of suggestions which will be utterly worthless, but I am confident that he will receive some specific design ideas, which will be of great use, and furthermore, that he will put himself in a far better position to observe—yes, even to anticipate—trends of design.

I am a firm believer in the increasing good which can be derived from a more definite crystallization by the major trade associations of motor vehicle standards, as pertaining to their particular vocation. A well known example of the benefits which may result lies in the cab-to-axle dimensions as prescribed by the American Petroleum Institute. I believe that the major trade associations should be urged to set up definite standards, both of design and of cost accounting.

I recommend that the Society of Automotive Engineers prescribe a questionnaire, which would be useful to the trade associations in their endeavors to arrive at motor vehicle designs most scientifically adapted to the problems of their individual industries. A gradual codification of motor vehicle designs and practices on the part of the trade associations should be helpful in eradicating the confusion and the bad practices which have existed in the past, and which have been a great detriment to manufacturers and buyers alike.

It should be remembered that the first cost of a truck is roughly only one-sixth of the cost of transportation, measured over the life of the vehicle. The purchaser who buys a truck which is too small for the job to be done is simply mortgaging the future.

It is my conviction that one of the several major causes of restrictive motor vehicle legislation has been due to the laxity and indifference of operators, in conection with the proper maintenance and operation on the highways of their equipment. There is nothing so irritating to a motorist as a truck driver who "hogs" the middle of the road, and who otherwise fails to observe the rules of common decency and courtesy; nor is there anything so perturbing as the endeavor to pass a "whipping" semi-trailer. These things are quite needless. There is no excuse for them. They represent a condition which must be, and can be corrected.

Higher Compression Ratios Improve Performance

(Continued from Page 4)

creasing power and ecenomy without increase in weight, with no increase in the cooling surface of the radiator, and with a decrease in mean bearing pressures. It is small wonder, then, that the average compression ratios have increased steadily during the last few years as fuels of high anti-knock value have become available. The advantages of high compression in the field of commercial vehicles has become apparent even more recently. The increase in the power of tractors, buses and trucks, produced by increased compression, has been found in many cases to more than compensate for the necessity of using high anti-knock fuel, and at present the activity among manufacturers and users in this field is marked.

While the nature of the fuel used is the most important single factor in determining the possibilities of the automotive engine, it should not be forgotten that the atuomotive engine designer has not reached the limit of engine performance that can be attained with a given fuel.

As an illustration of some of the possibilities, the accompanying Fig. 2 shows the results of some experiments from our own laboratory on the increase in permissible brake mean effective pressure for a given fuel, brought about by abnormal valve and piston cooling. While the devices used to cool the valves and piston were not practical in this case, they illustrate the possibilities which the future may perhaps hold in store of making better use of the fuels at present available. The burden of future development is not entirely on the shoulders of the oil refiner, part of it must be borne by the automotive engineer. The problem is a joint one and its solution will require the closest possible co-operation between the two industries to make the most of the possibilities of the future.

Altogether, it appears that the trend of the last few years in automotive-engine design will be continued; that the fuel of the future will permit engines of greater efficiency than those of today; and that the advantages of engines of high brake mean effective pressure will be still more appreciated by the owner who drives for pleasure and by the commercial car owner.

ELK HILLS OIL OUTPUT ABOUT 400,000,000 BBLS.

Washington, Oct. 6.—The ultimate production of oil in the Elk Hills region in California is estimated at 400,000,000 barrels, the Geological Survey of the Department of the Interior predicts in a study on the geology and oil resources of the area just made public.

Up to the second half of 1928 the region had produced 97,414,622 barrels, the report states. The following additional information was taken from the report:

The annual production of oil from the Elk Hills rose rapidly from 291,000 barrels in 1919 to $17,990,000 barrels in 1921. The effects of overproduction in the newly discovered fields in the Los Angeles Basin early in 1922 were felt in the Elk Hills as elsewhere. Consequently, late in 1922 and throughout 1923 almost half the potential production was closed in, and the production dropped to 8,087,000 barrels in 1923.

Early in 1924 the wells were again yielding almost their full production, and in 1924 the output was 13,530,000 barrels. During the middle of 1925 and again in 1927-28 the production of this field and of others in San Joaquin Valley was curtailed by the shutting in of wells.

BUYS VITALITE

Los Angeles, Oct. 6.—Western States Sales Company, Inc., P. O. Box 523, Arcade Station, has purchased the manufacturing equipment of the Vitalite Corporation of Santa Ana, and has moved its machinery and stock to 3305 South San Pedro St., Los Angeles, where it will utilize an industrial type building with 5,000 square feet of floor space. The latter company has for many years been manufacturing a complete line of aluminum alloy pistons.

Table 1—Actual Data From Two Commercial Cars for Which Optional Heads Are Available

	Compression Ratio Low	High	Low	High
Compression ratio	4.4	4.8	5.8	7.0
Correct spark advance, deg. B.T.D.C.	10.0	10.0	..	¾ in. on flywheel B.T.D.C.
1. Increase in average compression pressure, lb. per sq. in. at 20 m. p. h.	..	10	..	50.8
2. Decrease in average time to accelerate from				
(a) 10 to 30 m.p.h., per cent.	..	12.58	..	13.2
(b) 10 to 50 m.p.h., per cent.	..	11.40	..	11.9
3. Decrease in time required to climb				
(a) 7.2 per cent. grade (3100 ft.), sec.	..	3.0	..	3.8
(b) 11.6 per cent. grade (1600 ft.), sec.	..	12.6	..	3.8
4. Increase in speed at top of grade				
(a) 7.2 per cent. grade (3100 ft.), m.p.h.	..	3.5	..	5.0
(b) 11.6 per cent. grade (1600 ft.), m.p.h.	..	10.0	..	5.5
5. Increase in miles per gallon at	M.P.H.	Per Cent.	M.P.H.	Per Cent.
(a)	20	5.78	10	14.8
(b)	25	7.12	15	16.2
(c)	30	7.30	20	19.3
(d)	35	7.35	25	25.0
(e)	40	7.70	30	23.2
(f)	50	8.92	40	12.0
(g)	60	15.38	50	11.4
6. Increase in top speed, m.p.h.	..	2.2	..	3.0

Cumulative New Commercial Car Registration Statistics, September, 1932

States	Autocar	Brockway	Chevrolet	Diamond-T	Dodge	Federal	Ford	G. M. C.	Indiana	International	La France-Republic	Mack	Pierce-Arrow	Reo	Sterling	Stewart	Studebaker	White	Willys-Overland	Miscellaneous	Totals	States
Illinois	1		169	20	31	2	440	8	3	59	1	2		12	2		4	2	4	7	767	Illinois
North Dakota			30	1	1		34	3		21		2		1			1				94	North Dak.
Totals	1		199	21	32	2	474	11	3	80	1	4		13	2		5	7	4	7	861	Totals
Illinois, 1931	2	2	355	40	53	5	426	55		84		6		14	2	1	12	4	12	47	1120	Illinois, 1931
North Dak, '31			43		5		45			31				1					1	3	129	Nor. Dak, '31
Totals, 1931	2	2	398	40	58	5	471	55		115		6		15	2	1	12	4	13	50	1249	Totals

AUSTIN M. WOLF ANALYZES SIX-WHEEL TRUCKS

With characteristic thoroughness, Austin M. Wolf, New York constulting engineer, analyzed the advantages and disadvantages of different forms of construction used in six-wheel trucks in a paper presented at the concluding session of the S. A. E. transportation meeting just concluded in Toronto. Extracts from the paper follow:

While the original six-wheel movement was aimed at reducing the roadbed stress imposed by heavy vehicles, it quickly spread even to light vehicles that could traverse poor roads without tearing them up to the extent as would a four-wheeler with the same load. While these lessened road stresses are vital and should interest our legislators, the truck industry was interested in the reactions of lessened road stress; namely, the decreased shock loads on the truck structure and mechanism. Abnormal constructions and monstrosities were avoided by this sound engineering conception, and wheelers, which have been developed to a point where only crawer-type equipment would have been considered feasible a few years ago.

Table 1—Six-Wheel-Truck Classification According to Axle Types

Group	Front Axle	Center Axle	Rear Axle
I	Dead	Driving	Dead
II	Dead	Driving	Driving
III	Driving	Driving	Dead
IV	Driving	Driving	Driving
V	Dead	Dead	Driving

I wish to emphasize the injustice done to the six-wheeler in many

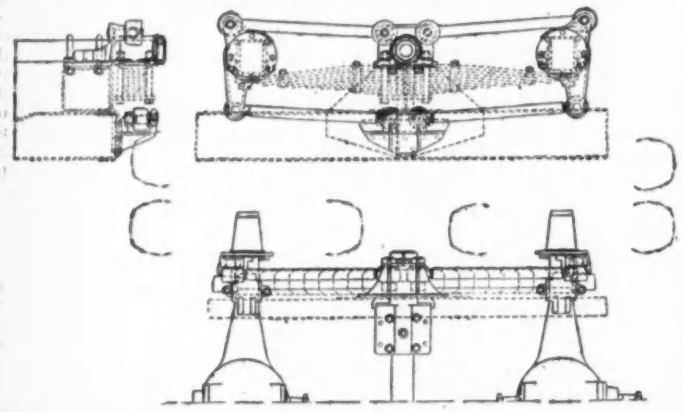


Fig. 1—Timken-Detroit double worm-unit with eight torque rods.

destructive road stresses were avoided by the elimination of excessive axle loads, which is the consideration of interest to the highway engineer. I believe that this is

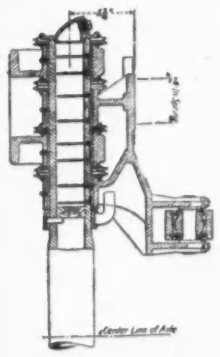


Fig. 2—Improved Timken main-beam journal and torque rod end.

one of the finest examples of modern engineering progress.

The soundness of the idea is substantiated by the continually increasing popularity of the six-wheeler. The truck user is ever on the alert to decrease his cost per ton-mile and is utilizing this type of truck to that end. The enthusiasm thus expressed must not be mistaken as pointing out the six-wheeler as the solution of every transportation problem. The movement has received unjust condemnation in many cases where unsuitable units or unwarranted capacities were recommended.

The four-wheel truck will always be with us, and the particular conditions of each situation will dictate which type of truck to use. The field is broad enough for all types, and sound, honest recommendations are more vital today than ever before to the maintenance of confidence in our great industry.

Most trucks are being run over improved roads and their requirements are very different from those of vehicles that must traverse poor terrain such as is found in excavation and construction work, quarries, sand pits, oil fields and mine stripping, and of trucks for transporting bulky loads, often on private property where state or local laws do not apply. For use in still rougher terrain and where commercial considerations are entirely absent, are the military cross-country six-

states where no greater gross weight is allowed than with a four-wheeler. Many progressive states recognize the six-wheeler's virtues and permit increased capacity. Maximum gross loads allowed vary between no restriction, 48,000 pounds and 16,000 pounds. Fifteen states give no preference to the six-wheeler over the four-wheeler, and where preference does exist the allowance varies in different states.

In many places today the life of the six-wheler is threatened. Being based upon indisputable engineering principles and possessing economical advantages are regards the vehicle and its load, as well as the roads upon which it runs, it seems inconceivable that legislators can be blind to these facts. The responsibility is on the indutry to start an educational campaign on this subject.

CLASSIFICATION ACCORDING TO AXLE TYPES

The simplest classification of six-wheel trucks is according to the kind of axles used. Table 1 indicates the variety, and I believe the sequence follows order of commercial development.

TABLE 2—STATIC-WEIGHT DISTRIBUTION IN BOGIE UNIT

Model	Axle Type Group (See Table 1)	Wt. on F'w'd Axle P. C.	Wt. on Rear Axle P. C.
Dodge	I	55	45
Federal	V	40	60
Hendrickson	II	50	50
Maccar	II	50	50
Mack (shaft drive)	II	50	50
Maxi	I	60	40
Sterling	II	50	50
Timken	I	50	50
Timken	II	50	50
Trucktor	I	60	40
Truxmore	I	65	35
(Adjustable to any one of three positions)	I	58	42
	I	50	50
Wisconsin	II	50	50

To date Group I, with the center driving axle, is enjoying the greatest popularity, comprising both in-built and "attached" rear axles. The simplicity of construction, reduced cost and weight, and lower maintenance make the Group I desirable where special tractive ability is not essential. Group II, with two rear driving axles, was developed for high tractive ability at the expense of cost, complication and weight and with many paradoxical situations of which Group I is free. Group III, with live front and center axles, as well as Group IV, with all axles driving, were evolutions of the four-wheel-drive truck, combining its virtues with the rear-bogie developments. roup V, with the driving axle at the rear, has been sponsored by the Federal Motor Truck Company and possesses certain advantages.

WEIGHT DISTRIBUTION ON AXLES

Where the combintion of a driving and a dead axle is used in a bogie unit, greater weight usually is borne on the driving axle to increase its tractive ability. With two driving axles, the rear-end weight usually is divided equally between them.

AXLE CONSTRUCTION AND DRIVE

All forms of mechanical drive known to the prior art are used in the six-wheel truck; namely, chain, worm, double-reduction and bevel-gear. Mack engineers produced a few years ago the double-jackshaft construction, which is continued in the same form except that the power divider is placed on the forward side of the front jackshaft and is of a distinctly new and unique type.

The Sterling Motor Truck Co. has been in production for about a year on a dual-chain-drive chassis, utilizing a single jackshaft unit driving all four wheels. The axles are entirely free to assume any position required by the uneveness of the road without binding or cramping the ends of the springs. In addition, the springs merely rest on the axles and pivot about the center of the main housing. Each is mounted on a spring seat having a very large bushing provided with ample lubricating chambers. This spring attachment accordingly divides the loads. The center of the spring rotation is also the center of the small driving sprockets.

(To be continued.)

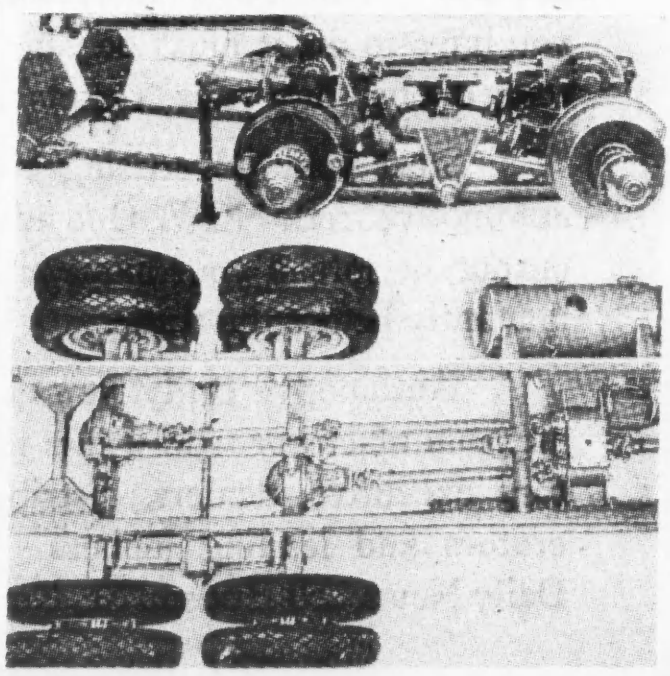


Fig. 3 (top)—Hendrickson bogie unit, and (bottom), Hendrickson double drive, with transfer case.

New Tire Developments Are Numerous and Important

(Continued from Page 3)

little more of the non-skid-vibration type of noise and considerably more road-swishing noise and drumming coming from brick pavements and the like.

I believe that the chance of blow-out and punctures from nails is lessened, but the effect of sudden deflation is still a debatable point. A 7.50 airwheel, when suddenly deflated, lets a wheel down about four inches, which is considerably less than is commonly supposed and is about three-quarters to one inch more than the drop with the corresponding size 6.00 balloon tire. A considerable number of shotgun tests have been made and the fact that car engineers seem to be adopting or designing for the air-wheel leads to the conclusion that the majority do not consider the new style tire a serious hazard.

The prevailing pressure for the new tires will be about 20 pounds for small cars and up to 24 pounds for the larger cars. Airwheel rims are all of the one-piece drop-center type, but the small rim diameter has made advisable the building of a slight taper on the rim under the tire beads so that the beads can wedge slightly and avoid creeping, such a taper having been employed on airplane rims for years.

Airwheels for cars seem to have been resolved down to rim diameters of 15 and 16 inches, with the 17-inch rim a possibility for some big cars, because of the required brake diameter, and the 14-inch rim a possibility if a relatively large air-wheel is desired without exceeding a certain over-all tire height. Rims of 15-inch diameter will take up to 13-inch brakes, and 16-inch rims will take up to 14-inch brakes. Apparently a way will have to be found to reduce the brake diameter on the larger cars an inch or more to 14 inches unless 17-inch rims are to be used.

Occasional mention is made of the possibility of eliminating springs if tires are made big and soft enough. However, it seems to me that a tire is fundamentally intended to envelop small road obstacles and absorb jars from irregularities, whereas the springs, aided by shock-absorbers, take care of the big upward thrusts of the tires, which have no snubbing action.

From an appearance standpoint, a moderate-size passenger-car super-balloon tire, on which the industry is focusing its attention, has, in the opinion of most persons with whom I have talked, such an advantage over all former styles that appearance is almost reason enough in itself for adoption.

The following table represents, I believe, the best thought today as to sizes of super-balloon tires for substitution for balloon tires:

Balloon Tires, In.*	Super-Balloon Substitute, In.*
5.00	6.00
5.25	6.50
5.50	7.00
6.00	7.50
6.50	8.25
7.00	9.00
7.50	9.00

*Nominal.

Industrial tractors, farm tractors and road-building machines are forms of vehicle that are undergoing a change with regard to pneumatic tires. The industrial tractor and road-building machines have used solid rubber tires for years and of late have occasionally been equipped with standard pnematic truck tires; but the time has now come when special tires are warranted for their use. These are being offered under such trade names as Pneumatic Lug tires or Road Builder tires, to distinguish them from standard tires.

The lug-type tire matches certain of the prevailing pneumatic truck tires in size, for example 6, 7 and 8 inch, but is of lighter construction with lower rated carrying capacity and with an exaggerated non-skid or traction-tread design. The wheel load on these machines is not excessive and overload in most cases is impossible; the need is for a tire of generous width that will not tend to sink in soft ground; that has a tread giving the utmost traction, as near like cleats as possible, and that is somewhat less expensive than the standard pneumatic truck tires previously sold for such use. Some industrial tractors attain relatively high speeds and speed brings a demand for pneumatics.

The startling development, however, is the use on farm tractors of the full airwheel, practically the same tire as was developed for airplanes except that, of late, a non-skid tread has been added, as shown in Fig. 1. Conversion of a hard-

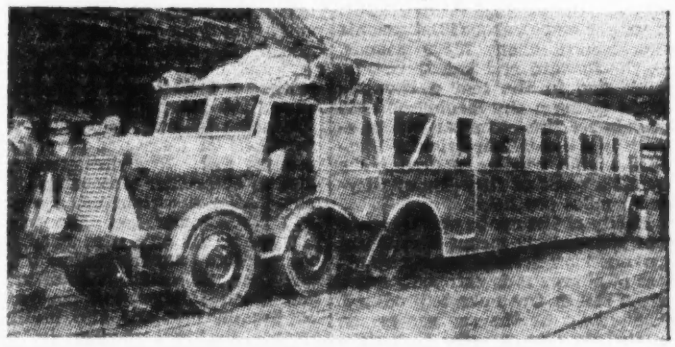


Fig. 2.—Michelin rail-car equipped with penumatic tires on flanged rims.

riding, bumpy, steel-wheel tractor into a luxurious conveyance with pneumatic tires twenty inches wide and the cushioning that goes with three to five-pound inflation-pressure seems to be a bold conception. The demand came first from the orange groves of Florida, where sand hindered the usual operations and steel tires sometimes damaged tree roots.

Other demands have sprung up all over the country, from golf courses and various soft and muddy field operations. The draw-bar pull that can be exerted by the tractor with such tires is astonishing; in most tests it exceeds that with the steel tires. Where the steel-lug tire sometimes digs itself in and becomes stuck, the air-wheel stays on top of the ground. As the tire carcass was not very thick, it punctured rather easily, but this was overcome by the use of thick rubber liners.

Air-wheels in the sizes required for tractors are expensive, and it is likely that, while they no doubt will be required in some classes of service, they will have to yield in volume of sales to some intermediate size of tire that can be built cheaper but will retain the advantages of the full air-wheel to a certain extent.

Pneumatic Tires for Rail Cars

The pneumatic tire for rail cars will make the use of pneumatic tires on all types of vehicle about complete. The idea of pneumatic tires for use on rails is not new, but, so far as my knowledge goes, nothing much ever came of any of these thoughts except to put on rails an occasional conventional automobile fitted with steel wheels. The Michelin Tire Company announced a successful pneumatic-tired railroad coach some time in 1931, after several years of intensive development, during which the French company built nine different units and determined the underlying principles for a successful operation of this kind. Now the Edward G. Budd Manufacturing Company is developing the Michelin idea on this continent, having completed last spring a coach, which is shown in Fig. 2.

(Continued on Page 8)

New Tire Developments Are Numerous and Important

(Continued from Page 7)

and is building several at present for various Eastern railroads. The company I represent is at present the only one licensed to manufacture tires of the Michelin design under the Michelin patents.

The rail tire is a 35 by 5.5 size on a 24-inch conventional straight-side rim and is of the high-pressure type, operating at about 100 pounds pressure. The wheel flange is a continuation of the rim extended out around the side of the tire and terminating in a conventional rail-flange shape. A ring of wood or metal inside the tire limits the drop in case of deflation so that the flanged wheel will not interfere with the fish-plate. The inner tube partly encircles the safety ring, making the tube more or less crescent shaped. The tire tread is somewhat flattened and rather wide and has a non-skid pattern designed especially to clean the rails. Michelin has equipped the tires with signals that sound an alarm in the driver's compartment in case of an under-inflated tire.

One of the Michelin cars was in the United States for a few months and was demonstrated in and around Philadelphia and in the vicinity of Akron, O. It is about 45 feet long, has a driver's cab, a small baggage compartment, a compartment for twenty-four passengers and a large rear baggage compartment. It weighs, empty, about 13,500 pounds and, loaded, about 16,500 pounds. At the forward end is a three-axle truck and in the rear a two-axle truck, giving a tire loading of 1,650 pounds per tire. The car was powered by a small four-cylinder Panhard engine, capable of driving the car at a speed of fifty-five or fifty-seven miles per hour.

Ability of the car to pick up speed and stop quickly means that it can make a high average speed regardless of stops. It is extremely quiet, as no rail or tire noise is produced. The weight of the car per person carried it about one-fifth the weight per passenger of the usual railroad car. This accounts for the low initial cost of the unit and the fact that it can be carried on pneumatic tires.

Our company is following intensely the development of this tire. We know that the load rating can be increased appreciably to enable the tires to support a heavier vehicle without unduly increasing the number of axles. In this development we obtained some interesting figures on tire life with various overloads. The following table is for a tire known to be able to carry a 2,000-lb. load for 20,000 miles in rail service, and the figures show the mileage expectancy when the tire is loaded more or less than 2,000 lbs.

Load, Lb.	Tire Life, Miles
1,800	28,600
2,000	20,000
2,200	11,600
2,400	6,300
2,600	2,800

A 30 per cent. increase over the correct load reduced the tire life to 14 per cent. of normal.

One may theorize at length as to the future of this rail-car development for passenger and/or express and freight service, for main lines or branch lines, and single coaches or trains, but it will not be very long before we shall know the possibilities, for cars of this type are in use on three French railroads and this country will soon be getting experience. Michelin undoubtedly started a new line of activity and is making an important experiment together with the Budd company. The particular type of tire now used may be the final solution, or a better tire may be developed. Having worked on the problem for some months, I am inclined to think that this new form of vehicle may have a very revolutionary effect on rail travel.

PRESENT TRUCK AND MOTORCOACH TIRES

Requirements of the pneumatic truck tire are becoming more severe every year. Faster acceleration and deceleration, higher speeds and longer runs are some of the reasons for expecting lower mileage; yet, the tire mileage increases. Headway has continued to be made, I believe, because (a) the tires are built better, (b) the truck and motor-coach manufacturers are appreciating the wisdom of correct tire sizing, (c) the operators are more and more demanding adequate tires and (d) tires are being cared for better by maintaining inflation pressures and avoiding abuses.

The phenomenal mileages on motorcoach tires today is due largely to the fact that the coach builders and operators have stepped up the tire size until the tires are underloaded 10 per cent. or more.

Rims also have much to do with tire life, and I am glad that truck manufacturers are paying more attention to this than formerly. When the 9/10 rim (7.33 in. wide) was introduced, it did a world of good to the 9-in. high-pressure and the 10.50 balloon tires by replacing the 8-in. rim (6 in. wide). The same principle applies to all other sizes.

From the results obtained with thousands of tires, we estimate that motorcoach tires which give 28,000 miles in a Northern belt, through Ohio, Michigan and Minnesota, will give only 20,000 to 22,000 miles, or a reduction of 25 per cent., when used in the South, solely because of tire operating temperatures. To state just what tire temperature is dangerous is difficult, but our guess is that heat above 170 deg. Fahr. will rapidly reduce the tire life. Some interesting temperatures reported not long ago were 99 deg. official, 113 deg. 5 ft. above the road and 137 deg. at the road. In another test we found a temperature of 239 deg. in the tire itself.

In some of our motorcoach-tire operations we discovered a very interesting fact. New tires were applied in the colder seasons and removed after a certain mileage and held for summer use. We found that the partly used tires stood the hot weather running better than new tires, no doubt because they were worn thinner and developed less internal heat and, also, possibly because they were broken in and the carcass limbered up before subjecting them to heat. Incidentally, this scheme provided tires with newer and better non-skid treads in the winter.

The character of sand available for road building in different localities affects tire wear, some sand being hard and sharp and other sand not so sharp. We call the tread life at Akron, O., 100 per cent., and find it much shorter in Florida, with a rating of 60 per cent., and much longer in Arizona, with a rating of 160 per cent. Hills and curves also have an important effect on tread wear.

LAW CONFERENCE ADOPTS STANDARD MECHANICS' LIEN

Washington, Oct. 6.—A proposed uniform state law on mechanics' liens was finally approved today by the National Conference of Commissioners on Uniform State Laws, by a vote taken by states, and recommended for adoption by the several states. Five negative votes were recorded.

The subject matter of the adopted uniform act has been before the conference for approximately seven years. The act was drafted in cooperation with a committee working with the Department of Commerce, upon which were represented all interests of the construction industry. Tentative approval was given to the act by the conference at its last meeting, the final draft making only slight changes in wording.

OKLAHOMA GASOLINE TAX SHOWS INCREASED RETURN

Oklahoma City, Oct. 6.—For the first month of the fiscal year state gasoline taxes collected showed an increase of more than $200,000 over the same period last year, according to a report just issued by the state tax commission. The gain was made despite the removal of the 1 cent per gallon special unemployment relief tax, the report says.

Have You Got *Your Tickets* For the Show?

The crowd of thousands was milling around the theater waiting for the doors to open. A great show was advertised. The house had seats for 1,000 people and 1,000 of them bought. But there were 3,000 outside on opening night that were told the seat sale for the next eight weeks was sold. The 3,000 "took a chance." They'd get seats easily. But the 1,000 anticipated the rush because a great show was advertised.

What's all that got to do with advertising. A lot. Both Republicans and Democrats are promising a great show next year and for years after. Prosperity is definitely on the way back. Industry is slowly recovering. Prices of all commodities will soon be stabilized. Production will be up and good prices will be received. That goes for the automobile industry, steel, building and others. When the demand comes next year, advertisers cannot expect to rush in and grab a share of the market. The selling must be started now. Whether you want new dealers or distributors, whether you want to implant your story in the consumers' minds, or whatever selling job you have to do, it must be started before the show opens. Buy your "tickets" now.

Start your advertising campaign to the automotive trade NOW. One ad. won't sell your output, or spread your name and message permanently before the trade.

Automotive Daily News can help nearly any manufacturer who wants to reach the factory executive, dealers, distributors, fleet operators and leading jobbers. – – – Automotive Daily News, 350 Hudson St., New York City.